Faridah, Nurul. 2018. Analisis Motilitas dan Viabilitas Spermatozoa Secara In Vitro Serta Fertilitas Ikan Mas (*Cyprinus carpio* L.) yang Terpapar Arsenik. Skripsi ini dibawah bimbingan Dr. Alfiah Hayati, M.Kes. dan M. Hilman Fu'adil Amin, S.Si., M.Si. Departemen Biologi, Fakultas Sains dan Teknologi, Universitas Airlangga, Surabaya.

ABSTRAK

Penelitian ini bertujuan untuk mengetahui pengaruh paparan arsenik (As) pada durasi motilitas dan viabilitas spermatozoa serta fertilitas pada ikan mas (*Cyprinus carpio* L.) secara *in vitro*. Sel spermatozoa dan telur dilakukan pengambilan dengan cara pemijahan alami dan dipapar As dalam 5 kelompok dengan variasi konsentrasi 0, 10, 25, 50, dan 75 ppm. Data hasil penelitian diuji statistik menggunakan SPSS, yang kemudian hasil uji non parametrik menggunakan *One Sample Kolmogrov-Smirnov* bahwa data distribusi normal Z > 0,05 dan uji Levene menunjukkan homogenitas data dengan nilai p < 0,05 pada hasil uji durasi motilitas massa dan individu sehingga dilanjutkan dengan uji *Brown-Forsythe* dan uji *Post Hoc Games-Howell*, sedangkan p > 0,05 ditunjukkan pada hasil uji viabilitas dan fertilitas sehingga dilakukan uji varian satu arah (*One Way ANOVA)* dan uji *Post Hoc Duncan* (α=0.05) untuk menganalisis varian signifikan antar kelompok perlakuan. Hasil penelitian menunjukkan bahwa motilitas dan viabilitas spermatozoa mengalami penurunan yang signifikan pada kelompok As dengan konsentrasi minimum 25 ppm, sedangkan penurunan fertilitas terjadi pada konsentrasi arsenik 10 ppm atau lebih. Kesimpulan dari penelitian ini adalah terdapat penurunan motilitas dan viabilitas spermatozoa, serta fertilitas ikan mas akibat paparan arsenik.

Kata Kunci : Arsenik, Spermatozoa, Motilitas, Viabilitas, Fertilitas, ROS, *Cyprinus carpio*, *Reactive oxygen species*

Faridah, Nurul. 2018. Analysis of In Vitro Motility and Viability Spermatozoa, and Fertility of Common Carp due to Arsenic Exposure. This script is guided by Dr. Alfiah Hayati, M.Kes. and M. Hilman Fu'adil Amin, S.Si., M.Si. Department of Biology, Faculty of Science and Technology, Airlangga University, Surabaya.

ABSTRACT

This study aims to identify the effect of in vitro arsenic exposure on the sperm motility and viability, and fertility of common carp (*Cyprinus carpio* L.). Spermatozoa and egg cells were collected by stripping from the mature testis and ovary and As exposure was divided into 5 groups there were one control group and 4 treatment groups with variation concentration (10, 25, 50, and 75 ppm). The obtained data were found to have normal distribution analyzed using One Sample Kolmogorov-Smirnov Z > 0,05 and Levene test. Furthermore, Brown-Forsythe and Post Hoc Games-Howell test was done with p > 0,05 in the variables of mass and individual motility. Variables with p value of < 0,05 in viability and fertility variables were subjected to One Way ANOVA and Post Hoc Duncan test to analyze significant variance between treatment groups. The result shows that motility and viability of common carp reduced significantly due to 25 ppm As exposure. Meanwhile, the decrease of fertility rate due to 10 ppm or more As exposure. The conclusion of this research is there were decreasing of motility, viability, and fertility due to As exposure.

.

Keywords : arsenic, spermatozoa, motility, viability, fertility, *Cyprinus carpio*, common carp.